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10/519,046

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Satoshi Murouchi

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207 7590 02/26/2008  
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EXAMINER

NELSON, MICHAEL B

ART UNIT

PAPER NUMBER

4145

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,046	<b>Applicant(s)</b> MUROUCHI ET AL.	
	<b>Examiner</b> MICHAEL B. NELSON	<b>Art Unit</b> 4145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/22/04</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of **50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract is objected to on the grounds that it is longer than 150 words.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 3 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, the phrase "provided that a total of (I) and (II) is **made** more than 60 mole percent" is vague and indefinite. The language of the limitation implies that a process is being done to components (I) and (II), (i.e. through which they are being **made**) and the language "a total" implies that there could be more than one total for the

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sum of the mole percents of components (I) and (II). It would be remedial to change "a" to "the" and to remove the word "made."

Regarding claim 3, the phrase "at a melting point +20°C" is vague and indefinite in that it is unclear if the melting point is limited as being 20°C or if the measurement of the viscosity is meant to be taken at 20°C above the melting point of the wholly aromatic liquid crystal polyester. Appropriate correction is required.

Regarding claim 6, the phrase "a portion of a thickness" is vague and indefinite in that it is unclear whether a portion of the molded product is meant to have a thickness of 0.5mm or less or if the molded product is meant to have a thickness which is a portion of 0.5mm. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
8. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda (U.S. 2001/0012862), and further in view of Tanaka (U.S. 5,837,366).

Regarding claim 1, Maeda discloses a molded product obtained by the injection molding of a wholly aromatic liquid crystal polyester resin composition which comprises

(See [0037], the ASTM dumbbell is a molded article and it is disclosed as being injection molded with the wholly aromatic liquid crystal polyester resin composition of the invention ([0007]-[0012]).

- 45 to 90 percent by weight of a wholly aromatic liquid crystal polyester having a melting point of 320°C or more,

(See [0009]. The composition is disclosed using a basis of 100 parts liquid crystal polyester resin composition, which is wholly aromatic. The lowest and highest percent by weight of liquid crystal polyester are 52.6wt% (i.e.  $100/(100+50+40)$  and 98.0wt% (i.e.  $100/(100+2+0)$ ), respectively. This calculated range significantly overlaps the instant claimed range. Also see Table

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- 1, Example 1. The example discloses a liquid crystal polyester composition of 85.0wt% (i.e.  $100/(100+11.8+5.9)$ ), which falls within the claimed range. Also see [0051], the liquid crystal polyester is disclosed as having a flow beginning temperature, or melting temperature, of 380 °C, which falls within the claimed range.)
- 10 to 40 percent by weight of an inorganic spherical hollow material having an aspect ratio of 2 or less,

(See [0029], the materials for the hollow spheres are disclosed as being inorganic and spheres inherently have an aspect ratio of 1, which is within the claimed range. Also see [0009]. The composition is disclosed using a basis of 100 parts liquid crystal polyester resin composition. The lowest and highest percent by weight hollow spheres are 0.141wt% (i.e.  $2/(100+2+40)$ ) and 33.3wt% (i.e.  $50/(100+50+0)$ ), respectively. This calculated range significantly overlaps the instant claimed range. Also see, Table 1, Example 2. The example discloses a liquid crystal polyester composition having inorganic hollow spheres at 15.0wt% (i.e.  $18.8/(100+18.8+6.3)$ ), which falls within the claimed range.)

- and 0 to 15 percent by weight (100 percent by weight as a total) of an inorganic filler

(See [0009]. The composition is disclosed using a basis of 100 parts liquid crystal polyester resin composition. The lowest and highest percent by weight of inorganic fiber are 0 and 28.2wt% (i.e.  $40/(100+2+50)$ ), respectively. This calculated range completely overlaps the instant claimed range. Also see, Table 1, Example 1. The example discloses a liquid crystal polyester composition

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having inorganic hollow spheres at 5.01wt% (i.e.  $5.9/(100+11.8+5.9)$ ), which falls within the claimed range.)

Maeda does not explicitly disclose the specific dielectric constant of 3.0 or less and dielectric dissipation factor of 0.04 or less of the molded product. However, in light of the substantially identical molded product composition and the substantially identical apparent viscosity and the substantially identical hollow sphere and inorganic filler characteristics and the substantially identical liquid crystal polyester preparation components in the molded article as taught by Maeda with the instant molded article, it will, inherently, possess the claimed properties. See MPEP 2112 (In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980)).

Maeda does not disclose that the inorganic filler having an aspect ratio of 4 or more.

Tanaka does disclose an inorganic filler having an aspect ratio of 4 or more.

(See C7, L33-46. The inorganic filler is glass fibers with a length of 10-700 micrometers and a diameter of 1-15 micrometers, which at the lowest is an aspect ratio of 10, which is within the claimed range.)

Furthermore, Tanaka discloses that the glass fibers of the particular dimensions used in his invention increase the mechanical strength of the molded product while still being uniformly dispersed in the resin (C7, L33-46). Tanaka's invention is drawn to the field of injection molded articles (C10, L17-35)

The inventions of both Maeda and Tanaka are drawn to the field of injection molded articles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the inorganic filler particles of Maeda by using glass fibers having the particular dimensions of Tanaka for the purposes of imparting increased mechanical strength and uniform filler dispersion.

Regarding claim 2, modified Maeda discloses all of the claimed limitations as set forth above. Maeda also discloses a molded product wherein said wholly aromatic liquid crystal polyester is prepared by the polycondensation of 80 to 100 percent by mole of

- p-hydroxy benzoic acid (I),

(See [0021], (A1))

- terephthalic acid (II), and

(See [0022], (B1) and (B2) are both terephthalic acids)

- 4,4'- dihydroxy diphenyl (III) (including the derivatives)

(See [0023], (C1))

- (provided that a total of (I) and (II) is made more than 60 mole percent) and 0 to 20 percent by mole of other aromatic compound which can conduct a decondensation reaction with any one of (I), (II), or (III).

(See [0051]. The liquid crystal polyester resin composition is 100% by mole I, II and III (A1, B1 and B2, and C3, respectively), which falls within the claimed range. Also, I and II are at a molar percent of 75%, which is within the



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claimed range. Also, no other aromatic compound is used in the embodiment of the composition, which falls within the claimed range.)

Regarding claim 3, modified Maeda discloses all of the claimed limitations as set forth above.

Maeda does not explicitly disclose the specific apparent viscosity at a melting point +20°C of said wholly aromatic liquid crystal polyester is 5,000 poise or less of the molded product. However, in light of the substantially identical molded product composition and the substantially identical apparent viscosity and the substantially identical hollow sphere and inorganic filler characteristics and the substantially identical liquid crystal polyester preparation components in the molded product as taught by Maeda with the instant molded product, it will, inherently, possess the claimed properties. See MPEP 2112 (In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980)).

Regarding claim 4, modified Maeda discloses all of the claimed limitations as set forth above. Additionally, Maeda discloses a molded product wherein the inorganic spherical hollow material having an aspect ratio of 2 or less is an average particle diameter of 5 to 200 micrometer, and a rate of volume hollowness of 50 percent or more.

(See [0052] the glass balloon 1 has a particle diameter of 30 micrometers, which falls within the claimed range. Also the balloon has a volume hollowness of 76% which is within the claimed range. Also, being an inorganic sphere, the balloon inherently has an aspect ratio of 1, which is within the claimed range.)

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Regarding claim 5, modified Maeda discloses all of the claimed limitations as set forth above. Additionally Maeda discloses a molded product with inorganic filler with a weight percent in the range of 5 to 15.

(See [0009]. The composition is disclosed using a basis of 100 parts liquid crystal polyester resin composition, which is wholly aromatic. The lowest and highest percent by weight of inorganic fiber are 0 and 28.2wt% (i.e.  $40/(100+2+50)$ ), respectively. This calculated range completely overlaps the instant claimed range. Also see, Table 1, Example 1. The example discloses a liquid crystal polyester composition having inorganic hollow spheres at 5.01wt% (i.e.  $5.9/(100+11.8+5.9)$ ), which falls within the claimed range.)

Maeda does not disclose a molded product with the inorganic filler having an aspect ratio of 4 or more is a glass fiber having an average diameter of 20 micrometers or less and/or talc having an average particle diameter of 100 micrometers.

Tanaka does disclose a molded product with the inorganic filler having an aspect ratio of 4 or more is a glass fiber having an average diameter of 20 micrometers or less and/or talc having an average particle diameter of 100 micrometers.

(See C7, L33-46. The inorganic filler, used in the stripping finger injection molded article (C10, L17-35) is glass fibers with a length of 10-700 micrometers and a diameter of 1-15 micrometers, which at the lowest is an aspect ratio of 10, which is within the claimed range. The disclosed range of the fiber diameter substantially overlaps the claimed range and the upper endpoint, (15 micrometers), lies within the claimed range.)

Furthermore, Tanaka discloses that the glass fibers of the particular dimensions used in his invention increased the mechanical strength of the molded product while still being uniformly dispersed in the resin (C7, L33-46). Tanaka's invention is drawn to the field of injection molded articles (C10, L17-35)

The inventions of both Maeda and Tanaka are drawn to the field of injection molded articles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the inorganic filler particles as taught by Maeda by using a glass fibers having the particular dimensions as taught by Tanaka for the purposes of imparting increases mechanical strength and uniform filler dispersion.

Regarding claim 6, modified Maeda discloses all of the claimed limitations as set forth above.

Maeda does not disclose a molded product comprising a portion of a thickness of 0.5mm or less.

Since the instant specification is silent to unexpected results, the thickness of 0.5mm or less is not considered to confer patentability to the claims. As the structural integrity of the molded product is a variable that can be modified, among others, by adjusting the thickness, the thickness would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made.

As such, without showing unexpected results, the claimed thickness of 0.5mm or less cannot be considered critical. Accordingly, one of ordinary skill in the art at the time

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the invention was made would have optimized, by routine experimentation, the thickness to obtain the desired structural integrity of the molded product (In re Boesch, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).)

Maeda does not explicitly disclose the specific relative dielectric constant of 3 or less of the molded product. However, in light of the substantially identical molded product composition and the substantially identical apparent viscosity and the substantially identical hollow sphere and inorganic filler characteristics and the substantially identical liquid crystal polyester preparation components in the molded product as taught by Maeda with the instant molded product, it will, inherently, possess the claimed properties. See MPEP 2112 (In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980)).

Regarding claim 7, modified Maeda discloses all of the claimed limitations as set forth above. Additionally, the reference discloses a molded product comprising a portable wireless telecommunications equipment having said molded product as a fixing or a holding member of a transmitting and receiving component.

(See [0048], parts for communication apparatuses, such as telephones and modems, which have transmitting and receiving parts, as well as holding members (holder) are disclosed as potential embodiments of the molded product.)

Regarding claim 8, modified Maeda discloses all of the claimed limitations as set forth above. Additionally, the reference discloses a molded product wherein:

- an apparent viscosity at a melting point +20°C of said wholly aromatic liquid crystal polyester is 5,000 poise or less;

(See rejection of instant claim 3 in the current office action.)

- the inorganic spherical hollow material having an aspect ratio of 2 or less is an average particle diameter of 5 to 200 micrometers, and a rate of volume hollowness of 50 percent or more;

(See rejection of instant claim 4 in the current office action.)

- and the inorganic filler having an aspect ratio of 4 or more is a glass fiber having an average diameter of 20 micrometers or less and/or talc having an average particle diameter of 100 micrometers or less and additionally the weight percent is in a range of 5 to 15.

(See rejection of instant claim 5 in the current office action.)

Regarding claim 9, modified Maeda discloses all of the claimed limitations as set forth above. Additionally, the reference discloses a molded product comprising:

- a portion of a thickness 0.5mm or less and comprising a relative dielectric constant of said portion 3 or less; and

(See rejection of instant claim 6 in the current office action.)

- a portable wireless telecommunications equipment having said molded product as a fixing or a holding member of a transmitting and receiving component.

(See rejection of instant claim 7 in the current office action.)

### ***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application No. 11/578,980.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims 1-9 only recite limitations which are also recited in claims 1-10 of Application No. 11/578,980.

The dielectric constant functional limitations in instant claims 1, 6, 8 and 9 would be inherent since the structural limitations on the molded product (i.e. the molded product

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composition, the liquid crystal polymer composition, and the specific properties of the hollow spheres and inorganic filler) are substantially identical. Also, while the limitations on the application of the molded product as telecommunication equipment, as in instant claims 6 and 9, is absent from the claims of Application No. 11/578,980, it would have been obvious to one having skill in the arts at the time of the invention to have applied the injection moldable liquid crystal polyester composition to all marketable injection moldable products, including telecommunication equipment. This is a provisional obviousness-type double patenting rejection.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571)270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MN/  
02/14/08

/Basia Ridley/  
Supervisory Patent Examiner, Art Unit 4145